

APPENDIX

DATA ELEMENTS FOR *2006 INTEGRATED WATER QUALITY MONITORING AND ASSESSMENT REPORT* AND
DOCUMENTATION FOR DEFINING AND LINKING SEGMENTS TO THE NATIONAL HYDROGRAPHY DATASET

(Seventeen Sheets)

Data elements for 2006 *Integrated Water Quality Monitoring and Assessment Report* and documentation for defining and linking segments to the National Hydrography Dataset.

The Clean Water Act (CWA) requires states to report water quality monitoring and assessment information to satisfy CWA sections 303(d) and 305(b). EPA recognizes that states use a variety of monitoring designs which allow them to characterize waters of the United States at different scales. This reporting format accommodates jurisdiction-wide or watershed-level assessments based on probability designs and attainment decisions on individual segment. The purpose of this appendix is to provide a consistent format for the Integrated Report. This appendix is organized as follows:

A. Reporting Segment Results

- 1) Define the segment
- 2) Report segment geographic information using the National Hydrography Dataset (NHD)
- 3) Report on the trophic status for all lakes
- 4) Report attainment decisions for the segment's standard and each of its designated use(s)
- 5) Document how and when the attainment decision for each segment-designated use combination was determined
- 6) Report any pollutants and non-pollutants causing impairments and their probable sources
- 7) Report any observed effects of pollution for each segment-designated use combination
- 8) Report on approved TMDLs and provide a schedule for establishing TMDLs
- 9) Documenting the monitoring schedule

B. Reporting Attainment Decisions based on Probability Designs

- 1) Identify the waters assessed through a probability design ("target population")
- 2) Report the geographic locations of the target populations using NHD
- 3) Report attainment results for standards
- 4) Report the precision and date of the attainment results
- 5) Report all pollutants and non-pollutants causing impairment and their probable sources

C. Data Elements to be reported using EPA's Assessment Database or an equivalent relational database

D. Minimal Database Design to support Electronic Submission

A. Reporting Segment Results

The following information should be submitted in order to identify and characterize segments. Jurisdictions should use a relational database to store and maintain their attainment results and, document decisions on standards attainment status, identify any pollutants or other types of pollution and their sources for all segments not attaining standards, and report the assessment metadata for each attainment decision. All segment information should be provided in a database format, preferably using EPA's Assessment Database (ADB) software. Following is a brief description of the data elements EPA expects to receive in electronic format. The permissible value domains for these data elements should be used and can be downloaded from <http://www.epa.gov/waters/adb>. This includes a standardized list of pollutants and non-pollutants, sources, assessment type and confidence codes.

1) Define the segments

As described in this guidance, all waters in the state that are "waters of the United States" (as defined in 40 CFR 122.2) should be assessed and reported on. These types of water may include, but are not limited to, lakes, rivers, estuaries, coastal shorelines, wetlands, oceans and ground water. The basic unit for assessing attainment status for sections 305(b) and 303(d) attainment is the segment.

The following descriptive information should be included for each segment:

- unique segment identifier (primary key)
- segment's type (river/stream, lake/reservoir, coastal shoreline, wetland, etc.)
- segment's size and units of measurement
- segment's name and location on the NHD
- segment's designated uses

2) Reporting segment geographic information using the National Hydrography Dataset (NHD)

Each state and territory must define their segments, in order to report the status of all of the Nation's waters in an effective and consistent manner. Segments are the basic unit of record for conducting and reporting the results of all water quality assessments. Currently, state and territory segments are defined using a wide range of criteria - from individual monitoring stations to Natural Resource Conservation Service watersheds. Sometimes these segments are defined using geographic information systems (GIS) but more often are only described textually. As a consequence, it is extremely difficult to ensure adequate assessment of all waters. EPA strongly encourages states and territories to uniformly adopt the National Hydrography Dataset (NHD) reach addressing protocol for assigning segments. Through a unique reach number and a position, reach addresses precisely locate water features, such as segments. These reach addresses get stored in a GIS compatible format. NHD reaches are typically defined from confluence to confluence and are the hydrographic equivalent of a street's block number. A reach address is analogous to a street address number. Additional NHD information and data is available from USGS, <http://nhd.usgs.gov>. EPA will provide hands on training to any interested jurisdiction on the protocols for linking water quality information to the NHD. Once the segment has a reach address, other critical water quality data -- such as the segments position within the stream networks, flow, and any other information linked to the NHD -- becomes readily available.

States and territories should document the process used for defining segments in their assessment methodologies. Segments should not span more than one water quality standard. The individual size of segments will vary based upon assessment methodologies. segments should, however, be larger than a sampling station but small enough to represent a homogenous standard attainment within individual segments. An individual segment may comprise part of a NHD reach, an individual NHD reach, or a collection of NHD reaches and or parts of reaches.

The use of the NHD protocol for segment delineation provides powerful mapping and spatial analysis capabilities for all water quality characterization activities. This delineation approach will help target resources and activities such as scheduling monitoring, issuing permits, and targeting restoration measures. In particular, the application of NHD will provide much more spatial resolution in identifying segments requiring the establishment of TMDLs. Furthermore, the incorporation of NHD will aid in developing and implementing management actions in individual and/or multiple segments. Jurisdictions should use the NHD protocols for defining and linking the segments covered by completed TMDLs or bundles of TMDLs. This TMDL specific geographic information should be submitted to EPA simultaneously with a TMDL's submission.

For each segment in Category 5, the use of the NHD convention clearly defines the geographic bounds affected by the TMDL. This should delineate the specific geographic location of the targeted segment, a clear description of the standard, and a more focused representation of the relevant watershed(s) which contribute point and non-point source pollutant loads. For example, in the establishment of a TMDL for a section 303(d) listed segment, pollutant reduction efforts in a non-impaired segment may be the most logical and efficient action to the attainment of the standard in the impaired segment. By linking TMDLs to NHD the management actions throughout a watershed will be visible.

EPA recognizes that some states and territories may work with other spatial hydrographic data, however, states and territories should still provide NHD addresses for their segments. NHD is currently being developed at higher resolutions and jurisdictions may use these data. States and territories interested in developing higher resolution NHD are encouraged to work with United States Geological Survey (USGS).

The NHD-Reach Indexing Tool (RIT) is a useful tool for creating segment's reach addresses and can delineate user-defined polygons in wetlands, large estuaries, oceans, and near coastal segments. All GIS coverages submitted to EPA should have unique segment identifiers that match those in the jurisdiction's assessment database. Table 1 lists the basic requirements for a GIS submission and the appropriate metadata that should be included.

3) Report on the trophic status for all lakes

The trophic condition of all lakes must be reported using values found on <http://www.epa.gov/waters/adb>.

Table 1. Reporting on Segment Geographic Information

Water Type	GIS Coverage	Database Metadata
Rivers	River segments should be included as a linear feature in a GIS coverage (e.g., ESRI Shapefile). NHD event table format is preferred.	Include standard metadata requirements for NHD event tables. A list of these requirements can be found at: http://www.epa.gov/waters/georef/nhdrit_datastructure.pdf Otherwise provide Federal Geographic Data Committee (FGDC) Content Standard for Digital Geospatial Metadata about the coverage, as well as the location of an segment identifiers in the coverage that can be joined to those in the database. FGDC metadata requirements can be found at: http://www.fgdc.gov/metadata/contstan.html
Lakes	Lake segments can be included as a linear or polygon feature in a GIS coverage (e.g., ESRI Shapefile). NHD event table format is preferred.	Include standard metadata requirements for NHD event tables. A list of these requirements can be found at: http://www.epa.gov/waters/georef/nhdrit_datastructure.pdf Otherwise provide Federal Geographic Data Committee (FGDC) Content Standard for Digital Geospatial Metadata about the coverage, as well as the location of a segment identifiers in the coverage that can be joined to those in the database. FGDC metadata requirements can be found at: http://www.fgdc.gov/metadata/contstan.html
Estuaries	Estuarine segments should be included as a polygon feature in a GIS coverage (e.g., ESRI Shapefile).	Include Federal Geographic Data Committee (FGDC) Content Standard for Digital Geospatial Metadata about the coverage, as well as the location of a segment identifiers in the coverage that can be joined to those in the database. FGDC metadata requirements can be found at: http://www.fgdc.gov/metadata/contstan.html
Coastal Waters quality	Coastal shoreline segments should be included as a linear feature in a GIS coverage (e.g., ESRI Shapefile). Other near coastal units (e.g., shellfish beds) should be reported as polygons.	Include standard metadata requirements for NHD event tables. A list of these requirements can be found at: http://www.epa.gov/waters/georef/nhdrit_datastructure.pdf Otherwise provide Include Federal Geographic Data Committee (FGDC) Content Standard for Digital Geospatial Metadata about the coverage, as well as the location of a segment identifiers in the coverage that can be joined to those in the database. FGDC metadata requirements can be found at: http://www.fgdc.gov/metadata/contstan.html
Wetlands	Wetlands segments should be included as a polygon feature in a GIS coverage (e.g., ESRI Shapefile).	Include Federal Geographic Data Committee (FGDC) Content Standard for Digital Geospatial Metadata about the coverage, as well as the location of a segment identifiers in the coverage that can be joined to those in the database. FGDC metadata requirements can be found at: http://www.fgdc.gov/metadata/contstan.html

4) Report attainment decisions for the segment's standard and each of its designated use(s)

EPA encourages states and territories to provide assessment information for every segment's designated use(s). Each segment's designated use should be assessed and reported to have one of the following conditions:

- Fully Supporting
- Not Supporting
- Insufficient or no data and information - Segments with insufficient data and information to support an attainment determination for a standard
- Not Assessed

For segments which are not attaining one or more designated uses, jurisdictions should determine and report if the segment is expected to attain its standard (i.e., all designated uses) in the near future. For these segments, jurisdictions should report the other pollution control requirements which when implemented will result in the attainment of water quality standards. Jurisdictions should also report the dates these actions were or will be implemented and the anticipated year of attainment. This information is needed by EPA to validate the assumptions jurisdictions used when placing segments in Category 4b.

Threatened waters are those segments where a jurisdiction has determined that sufficient data exists to determine that all designated uses are being attained, and that non-attainment is predicted by the time the next *Integrated Report* is due to be submitted. These segments should be included in Category 5.

5) Document how and when the attainment decision for each segment-designated use combination was determined

EPA requests the following information be included to document the attainment decision for each assessed segment designated use:

- Assessment date (e.g., December 20, 2005) - This date documents when the jurisdiction completed the technical analysis of data and made its decision on the segment's designated use attainment status. A common way to store a full Y2K-compliant date is in the character format YYYYMMDD (e.g., 20031220 for December 20, 2005).
- Assessment type - Jurisdictions should list all types of data they used to make each use attainment decision (e.g., physical/chemical monitoring, toxicity testing (e.g., bioassays), benthic macro-invertebrate surveys, etc.).
- Assessment confidence - Assessment confidence levels, which range from 1 (least rigorous) to 4 (most rigorous) should be reported for each assessment type. Jurisdictions should provide definitions of their assessment confidence levels in their assessment methodologies.

6) Report any pollutants and or non-pollutants causing impairment and their probable sources

Jurisdictions should report all of the pollutants or other types of pollution for impaired or threatened segments. The list of acceptable pollutants and other types of pollution is available on <http://www.epa.gov/waters/adb>. The list contains a complete set of chemical characteristics and non-pollutant causes of impairment. Jurisdictions should link the specific pollutant to the designated use or designated uses that are not being attained.

Jurisdictions should also identify the probable sources contributing to an impairment. The sources should be documented using the list provided on <http://www.epa.gov/waters/adb>. These sources need to be linked to the appropriate pollutant causing the impairment.

7) Report any observed effects of pollution for each segment-designated use combination

Jurisdictions should document and report any observed effects of pollution for each segment-designated use combination. Observed effects may include; fish lesions, fish kills, stream bottom deposits, low combined biota/habitat bioassessment. How jurisdictions use observed effects to make attainment decisions is dependent upon a jurisdiction's interpretation of their water quality standards and should be documented in their assessment methodology.

8) Report on approved TMDLs and provide a schedule for establishing TMDLs

Jurisdictions must submit an estimated schedule for establishing TMDLs for every pollutant on each segment in Category 5. This schedule should specify the year for all TMDLs which will be established prior to the next Integrated Report, and the number per year for all others. In addition jurisdictions should indicate which of the pollutants on impaired segments have an approved TMDL. Jurisdictions should indicate the date EPA approved these TMDLs and the EPA TMDL identification number. Information on the approval date and EPA TMDL identification number can be found on <http://www.epa.gov/waters/tmdl>.

B. Reporting assessments based on State-wide or watershed-level probability designs

The following sections address the data requirements recommended by EPA for reporting probability-based assessments. This guidance defines the data elements and format necessary to document a jurisdiction's assessment based upon probability based monitoring designs. Each data element is defined in Table 3.

1) Identify the waters assessed through a probability design ("target population")

Study area findings should be associated with the area's standard(s) and should be clearly documented along with the target population that was monitored to develop the indicator. For instance, Wadeable perennial streams throughout a state and territory may be the target population for an indicator of biological integrity related to aquatic life support. Each probability survey project should be assigned an ID (a Probability Survey Project ID).

2) Report the geographic locations of the target populations using NHD

Where the target population is not the same as an entire state, maps should be provided that use polygons to highlight a project's geographic area such as all waters of a specific class (e.g., lakes) throughout watershed units, eco-regions, or other geographic regions. States and territories are expected to have GIS polygon coverages (e.g., ESRI Shapefile) related to each probability survey project. GIS coverages should conform to Federal Geographic Data Committee (FGDC) Content Standard for Digital Geospatial Metadata. State in-house probability survey project polygons should be available with basic FGDC

compliant metadata in either a shapefile format or in a standard ESRI export file format (*.e00). Additional information can be found at: <http://www.fgdc.gov/metadata/constan.html>. Additional information to define the geographic frame (sample frame or “population”) for a probability survey project should include such items as: the water type relevant to the project (e.g., rivers); or other “stratification” features.

States and territories are also expected to develop size estimates for the entire target population. States and territories should be able to document the GIS Hydrography coverage or other data layer used to develop their target population sizes.

3) Report attainment results for water quality standards

For each probability survey project, attainment results should be summarized. The presentation of the study’s findings should apply a breakpoint that clearly defines the estimated percentage of the total target population meeting standards and the percentage not meeting standards. For each probability survey project, a description of the project methodology should be provided. Where there are a small number of standard project designs, a state can make reference to pertinent sections from its monitoring strategy, QAPP and/or assessment methodology materials. The estimated percentage of the target population meeting standards should also be accompanied by the precision of the estimate, in the form of 90 or 95% confidence intervals.

4) Report the precision and date of the probable attainment results

A major attraction of probability designs is that statistics can be developed that show the confidence levels associated with attainment results. States and territories should provide a discussion of the statistical tests they apply to produce the precision value information or refer to other documents that provide this information such as a QAPP or assessment methodology. As with reporting for segment results, the assessment date should be included for each probability survey project indicating when the state and territory finished the technical analysis of data and made its decision on the standards attainment status.

5) Report any pollutants and non-pollutants and their probable sources

Where possible, EPA requests that states and territories develop pollutant and source summary information for each of their probability survey projects. The maximum impact percentage should not exceed the percent for the use non-attainment results reported.

C. Data elements to be reported using EPA's Assessment Database or an equivalent relational database

Data elements to be reported using either EPA's Assessment Database or the relational database structure outlined in Section D, Minimal Database Elements to Support Electronic Submission.

Table 2. Segment Specific Data Elements to be reported in the 2006 Integrated Report

Field Name	Field Type	Domain	Description	Requirement Condition
STATE	Text	http://www.epa.gov/waters/adb/	State or jurisdiction abbreviations	Always Required
TOT_WATER_TYPE	Text	http://www.epa.gov/waters/adb/	Water type for the Atlas of Total waters within a jurisdiction	Always Required
TOT_WATER_SIZE	Numeric	Dependent upon units used to measure	Water size for the Atlas of Total waters within a jurisdiction	Always Required
SCALE	Text	Free Text	Scale (i.e. 1:24,000) of the source used to determine the water size for the Atlas of total waters within a jurisdiction	Always Required
TOT_SOURCE	Text	Free Text	Source used to determine the water size for the Atlas of total waters within a jurisdiction	Always Required
ID305B	Text	Free text, Jurisdiction specific	Unique identifier for Assessment Unit ID (state defined)	Always Required
CYCLE	Date	YYYY	Reporting Cycle	Always Required
WATER_NAME	Text	Free Text	Name of Assessment Unit	Always Required
LOCATION	Text	Free Text, Jurisdiction specific *Note, this does not replace linking Assessment Units to the NHD	Text description of the Assessment Unit's location	Always Required

Field Name	Field Type	Domain	Description	Requirement Condition
WATER_TYPE	Text	http://www.epa.gov/waters/adb/	Water type for the Assessment Unit (e.g., River, Estuary, Wetland)	Always Required
WATER_SIZE	Numeric	Dependent upon units used to measure	Size of the Assessment Unit	Always Required
SIZE_UNIT	Text	http://www.epa.gov/waters/adb/	Size unit (e.g. Miles if WATER_TYPE is River)	Always Required
TROPHIC_STATUS	Text	http://www.epa.gov/waters/adb/	Trophic status of publicly owned lakes	Optional
TREND	Text	http://www.epa.gov/waters/adb/	Trend of publicly owned lakes	Optional
CYCLE_LAST_ASSESSED	Date	YYYY	The most recent cycle that an Assessment Unit was assessed	Optional
MONITORING_SCHEDULED_DATE	Date	YYYY	Date by which additional monitoring for attainment status will be completed	Optional
PREVIOUSID305B	Text	Free Text	Used for tracking Assessment Units from cycle to cycle. This field would be used when there is a change in the ID structure for an Assessment Unit, or if an Assessment Unit gets split	Conditionally Required: If an Assessment unit has changed from the previous reporting cycle, then a record needs to be maintained of how the new ID matches with the previous ID

Field Name	Field Type	Domain	Description	Requirement Condition
PREVIOUSCYCLE	Date	YYYY	Cycle for the previous Assessment Unit ID. Used for cycle tracking	Conditionally Required: If PREVIOUSID3 05B is populated, then the cycle that the previous ID is associated with should also be populated.
USE_NAME	Text	http://www.epa.gov/waterscience/wqs	Description of the designated use which is being assessed	Always Required
ATTAINMENT	Text	Fully Supporting, Not Supporting, Insufficient Information or Not Assessed	The attainment status for a particular designated use associated with an Assessment Unit	Always Required
THREATENED_FLAG	Text	Y/null	Flag used to indicate threatened waters. Threatened assessment units are those assessment units where uses are being attained, but non-attainment is predicted by the time the next <i>Integrated Report</i> is submitted.	Conditionally Required: Must be populated if the use is Threatened
ASSMNT_TYPE	Numeric	http://www.epa.gov/waters/adb/	Caption describing a category of data types used to make attainment/impairment decision	Conditionally Required: Must be populated for all uses that are assessed
ASSMNT_CONF	Numeric	http://www.epa.gov/waters/adb/	A score ranging from a lower range of 1 up to 4 indicating reliability and precision for a category of standard specific assessment type	Optional

Field Name	Field Type	Domain	Description	Requirement Condition
ASSMNT_DATE	Date	YYYYMMDD	Date the use attainment decision was made. Can be entered for each assessed use.	Optional
CAUSE_NAME	Text	http://www.epa.gov/waters/adb/	Description of the pollutants, non-pollutants and observed effects	Optional
SOURCE_NAME	Text	http://www.epa.gov/waters/adb/	Description of the source of the pollutant	Optional
CYCLE_FIRST_LISTED	Date	YYYY	First Year (cycle) water was listed for a given cause of impairment	Conditionally Required: Required for 303(d) listings
POLLUTANT_FLAG	Text	Y/N	Marked Y if the cause of impairment is a pollutant, N if the cause is pollution	Conditionally Required: Must be populated if the Cause of Impairment is a pollutant
EXPECTED_TO_ATTAIN_DATE	Date	YYYY	Date by which the assessment unit is projected to attain its standards	Conditionally Required: Required for parameters that are causes of impairment, but will meet standards by some given date in the future.
IMPLEMENTATION_ACTION	Text	Free Text	Pollution control requirements other than a TMDL taken for an Assessment Unit to meet standards	Conditionally Required: At least one action is required for each EXPECTED_TO_ATTAIN_DATE

Field Name	Field Type	Domain	Description	Requirement Condition
ACTION_DATE	Date	YYYYMMDD	Date other pollution control requirement was/will be completed	Conditionally Required: Required for each IMPLEMENTATION_ACTION
TMDL_SCHEDULE	Date	YYYY	Date when the jurisdiction anticipates submitting the TMDL for EPA approval	Conditionally Required: Either TMDL_SCHEDULE or TMDL_PRIORITY must be populated for causes that are part of the 303(d) list.
TMDL_PRIORITY	Text	High, Medium, Low	State's priority for developing a TMDL	Conditionally Required: Either TMDL_SCHEDULE or TMDL_PRIORITY must be populated for causes that are part of the 303(d) list.
TMDL_COMPLETION_DATE	Date	YYYYMMDD	Date TMDL was completed or the date by which a TMDL is projected to be completed	Optional
TMDL_ID	Numeric	http://www.epa.gov/waters/tmdl/ 1	EPA assigned unique identifier for approved TMDLs	Conditionally Required: Must be populated for causes that have had TMDLs established
TMDL_PROJECT_STATUS	Text	http://www.epa.gov/waters/adb/	Brief description regarding the status of the TMDL development for a given Assessment Unit/Pollutant combination.	Optional

Field Name	Field Type	Domain	Description	Requirement Condition
TMDL_STATUS_COMMENT	Text	Free Text	Summary comment describing the status of the TMDL development for a given Assessment Unit/Pollutant combination.	Optional
DELISTING_REASON	Text	http://www.epa.gov/waters/adb/	Reason an Assessment Unit/Cause has been removed from the 303(d) list	Conditionally Required: Must be populated for Assessment Units/Causes that have been removed from the 303(d) list
DELISTING_COMMENT	Text	Free Text	Summary comment describing the reasons for delisting	Optional
DELISTING_DATE	Date	YYYYMMDD	Date an Assessment Unit/Cause has been removed from the 303(d) list	Conditionally Required: Must be populated for Assessment Units/Causes that have been removed from the 303(d) list
MONITORING_STRATEGY	BLOB	Free Text	The jurisdiction's current monitoring strategy document stored in PDF, MS Word or WordPerfect format.	Optional
ASSESSMENT_METHODODOLOGY	BLOB	Free Text	A copy of the assessment methodology used to make attainment decisions stored in PDF, MS Word or WordPerfect format.	Optional

Table 3. Probabilistic Monitoring Data Elements to be reported in the 2006 Integrated Report

Field Name	Field Type	Domain	Description	Requirement Condition
PROJECT_ID	Text	Free text jurisdiction specific	State assigned identifier used to uniquely identify the study/project	Always Required
CYCLE	Date	YYYY	Reporting Cycle	Always Required
PROJECT_NAME	Text	Free Text	Name of the project	Always Required
TARGET_POPULATION	Text	Free Text jurisdiction specific	Description of the project's target population	Always Required
WATER_TYPE	Text	http://www.epa.gov/waters/db/	Water type for the assessment unit (e.g., River, Estuary, Wetland)	Always Required
WATER_SIZE	Numeric	Dependent upon units used to measure	Size represented by the target population	Conditionally Required: Required if WATER_TYPE is populated
SIZE_UNIT	Text	http://www.epa.gov/waters/db/	Size unit (e.g. Miles if WATER_TYPE is River)	Conditionally Required: Required if WATER_SIZE is populated
LOCATION_TYPE	Text	Free Text	Description of the type of location (i.e. 8-digit HUC, County, etc.)	Optional
LOCATION_DESC	Text	Free Text	Values for locations associated with an Assessment Unit or Project ID.	Conditionally Required: Required if LOCATION_TYPE is populated
INDICATOR	Text	Free Text	A description of the indicator that was monitored (e.g. Biological indicator, Trophic State Index, etc.)	Always Required

Field Name	Field Type	Domain	Description	Requirement Condition
ASSMNT_DATE	Date	YYYYMMDD	Date the attainment decision was made	Optional
PRECISION	Numeric	1-100.00	Precision of the estimate, in the form of 90 or 95% confidence intervals	Optional
CONFIDENCE	Numeric	1-100.00	The confidence interval (% +/-) for the standard attainment decision	Optional
USE_NAME	Text	Designated Uses as described in state water quality standards	Description of the designated use which is being assessed	Optional
PERCENT_ATTAINING	Numeric	1-100.00 (%Attaining + %Not Attaining + % Nonresponse should not exceed 100)	Percent of target population attaining standard	Always Required
PERCENT_NOT_ATTAINING	Numeric	1-100.00 (%Attaining + %Not Attaining + % Nonresponse should not exceed 100)	Percent of target population not attaining designated standard	Always Required
PERCENT_NON_RESPONSE	Numeric	1-100.00 (%Attaining + %Not Attaining + % Nonresponse should not exceed 100)	Estimated percent of the target population for which a use attainment assessment could not be completed	Optional
CAUSE_NAME	Text	http://www.epa.gov/waters/adb/	Description of the pollutants, non-pollutants and observed effects	Optional

Field Name	Field Type	Domain	Description	Requirement Condition
CAUSE_PERCENT	Numeric	Sum of all impairment percentages not to exceed the percent not attaining	Percent of non-attaining population impaired by a specific cause (30% non-attainment attributed to nitrogen)	Optional
SOURCE_NAME	Text	http://www.epa.gov/waters/a_db/	Description of the source of the pollutant	Optional
SOURCE_PERCENT	Numeric	Sum of all source percentages not to exceed 100% for a given impairment	Percent of non-attaining population attributable to a particular source of pollution (e.g. of the 30% of nitrogen impaired waters, 70% was potentially attributable to agricultural runoff)	Optional
MONITORING_STRATEGY	BLOB	Free Text	The jurisdiction's current monitoring strategy document stored in PDF, MS Word or WordPerfect format.	Optional
ASSESSMENT_METHODODOLOGY	BLOB	Free Text	A copy of the assessment methodology used to make attainment decisions stored in PDF, MS Word or WordPerfect format.	Optional

D. Minimal Database Design to support electronic submission of the Integrated Report

The data elements and business processes outlined in the previous three sections must be assembled into a relational database design. EPA's Assessment Database is one data base design capable of storing and reporting the attainment status of a jurisdiction's waters. States and territories should use EPA's Assessment Database to track the attainment status of their segments and to submit the supporting information behind their Integrated Report. If a state or territory or authorized tribe chooses not to use the Assessment Database, then at a minimum they should use the database design outlined in Diagram A to transmit their Integrated Report to EPA. EPA will provide any interested state or territory training and support using the Assessment Database.

Diagram A. Entity relationship diagram for the minimum elements needed to support an electronic submission of the Integrated Report.

